

CM
WHAT IS CLAIMED IS:

1. A stent comprising a wire formed into a serpentine configuration including a series of straight sections and a plurality of bends, said straight sections being joined by said bends to form a series of alternating loops, said serpentine configuration being formed into a cylindrical shape having a longitudinal axis and wherein said straight sections are bent into generally circular configurations surrounding and generally perpendicular to said axis, and means for expanding said circular configurations. ✓

2. The stent of claim 1, wherein said wire is made of malleable material.

3. The stent of claim 1, wherein said wire is made of malleable material from the group consisting of annealed stainless steel, tungsten and platinum.

4. The stent of claim 1, wherein said means for expanding is a balloon catheter, said balloon catheter being received within said cylindrical shape and extending along said axis.

5. The stent of claim 4, wherein said balloon catheter is a folded balloon catheter.

6. The stent of claim 1, wherein said circular configurations have a contracted condition in which said alternating loops include longitudinally overlapping portions adjacent said bends.

7. The stent of claim 6, wherein said circular configurations further have an expanded condition in which said longitudinally overlapping portions of adjacent loops are circumferentially diverged relative to said contracted condition.

8. The stent of claim 7, wherein said means for expanding is a balloon catheter, and said balloon catheter is folded and received within said cylindrical shape and extends along said axis.

9. The stent of claim 1, wherein said alternating loops include longitudinally overlapping portions adjacent said bends which are arranged to diverge circumferentially in response to expansion of said means for expanding.

10. The stent of claim 9, wherein said means for expanding is a balloon catheter, and said balloon catheter is folded and received within said cylindrical shape and extends along said axis.

11. The stent of claim 1, wherein said wire includes two opposite ends, said wire being formed into a loop adjacent each of said ends such that said ends are substantially shielded.

12. The stent of claim 1, wherein said wire has a outer diameter of 0.0018 inches.

13. A stent having a longitudinal axis and comprising:
a plurality of longitudinally-spaced wire loops, each
having a cusp, adjacent ones of said loops sharing a
common length of wire, each of said loops being formed
about said longitudinal axis into a discontinuous
cylindrical shape such that said cylindrical shape can be
expanded or contracted by displacing said loops
circumferentially; and

means for expanding said cylindrical shape from a
contracted condition to an expanded condition.

14. A stent according to claim 13, wherein said loops
are arranged so that said cusps of adjacent loops are in
opposing orientation.

15. A stent according to claim 13, wherein:
said loops are arranged so that said cusps of adjacent
loops are in opposing orientation; and
said contracted condition includes said cylindrical
shape having a first overlap region in which adjacent ones
of said loops longitudinally overlap each other.

16. A stent according to claim 15, wherein said
expanded condition includes said cylindrical shape having
a second overlap region in which adjacent ones of said
loops longitudinally overlap each other, said second
overlap region being smaller than said first overlap
region.

17. A stent according to claim 13, wherein said means for expanding includes a balloon catheter extending along said longitudinal axis and received through said cylindrical shape.

18. A stent according to claim 17, wherein said means for expanding includes a folded balloon catheter.

19. The stent according to claim 13, wherein each of said wire loops is made of malleable material.

20. The stent of claim 13, wherein each of said wire loops has a wire outer diameter of 0.0018 inches.

21. A wire stent having a longitudinal axis and comprising:

alternating clockwise and counterclockwise single coil helical sections situated about said longitudinal axis, adjacent ones of said helical sections being joined at a cusp; and

means for expanding said helical sections from a contracted condition to an expanded condition such that adjacent cusps are displaced circumferentially relative to each other.

22. A stent according to claim 21, wherein said means for expanding is a folded balloon catheter extending along said longitudinal axis and received through each of said helical sections.

23. The stent according to claim 21, wherein said helical sections are made of malleable material.

24. The stent of claim 21, wherein each of said helical sections has a wire outer diameter of 0.0018 inches.

25. A method for making a stent comprising the steps of:

(a) forming a wire into a planar serpentine configuration having a series of alternating opposing loops, each with a closed end; ✓

(b) placing said wire on a flat surface having a trough with a semi-cylindrical wall, said wire being situated over said trough such that said serpentine configuration is generally centered over said trough;

(c) using a cylindrical tool, forcing said wire into said trough between said cylindrical tool and said semi-cylindrical wall; and

(d) forcing said opposing loops over said cylindrical tool to form said wire into a generally cylindrical shape having a longitudinal axis, such that said loops lie longitudinally adjacent each other.

26. The method of claim 25, further comprising the steps of:

(e) removing said cylindrical tool and removing said wire from said trough;

(f) inserting a folded balloon catheter into said cylindrical shape; and

(g) tightening said cylindrical shape about said balloon catheter such that the wire contacts the balloon catheter along its entire length and adjacent loops have longitudinally overlapping portions adjacent the closed ends of said loops.

27. The method of claim 25, wherein the step of forming a wire into a planar serpentine configuration includes the step of forming a loop adjacent each of the free ends of the wire.

Sub B1
28. A method for inserting a stent which comprises:
(a) engaging a wire stent around a folded balloon catheter, said wire stent comprising alternating clockwise and counterclockwise single coil wire helical sections, adjacent ones of said helical sections being joined at a cusp;

(b) locating the catheter and stent within a passageway; and

(c) inflating the balloon catheter so that adjacent cusps are circumferentially displaced relative to each other until the stent engages the passageway.